L 14126-66
ACC NR: AP6000883

form of trihedral needles. The carrier density was ~6 x 10^{14} cm^{-3} at 296K. The measurements were made at 80 and 296K. Both temperatures, peaks of photoconductivity were observed at approximately 44 and 51 nm, and in addition, regular oscillations were observed at wavelengths lower than 0.40 μ, attributed to strong interactions between the non-equilibrium carriers and longitudinal optical phonons. The results are qualitatively interpreted from the point of view of the band structure of GaP. The complicated nature of this band structure makes a quantitative analysis difficult. The reason why the oscillations were not observed at room temperature is that the over-all photo-response decreases with increasing temperature, owing to the intensification of thermal capture, reduction in the diffusion length of the electrons, and increased rate of surface recombination. The relative roles of the direct and indirect transitions are estimated. Authors thank G. Ye. Pikus and I. N. Yassiyevich for help in discussing the results. Orig. art. has: 2 figures

SUB CODE: 20/ 11/ SUBM DATE: 06Jul65/ ORIG REF: 002/ OTH REF: 005

Card 2/2

L 17711-66 EWT(1) IJP(c) AT
ACC NR: AP6006833 SOURCE CODE: UR/0181/66/008/002/0475/0477

AUTHOR: Kovalevskaya, G. G.; Nasledov, D. N.; Siukayev, N. V.; Slobodchikov, S. V.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut, AN SSSR); North Ossetian State Pedagogical Institute im. K. L. Khetagurova, Ordzhonikidze (Severo-Osetinskiy Gosudarstvennyy pedagogicheskiy institut)

TITLE: Spectral photosensitivity in n-type InP

39

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 475-477

TOPIC TAGS: photosensitivity, photoconductivity, impurity center

ABSTRACT: Results are given of an investigation of the spectral distribution of photoconductivity of InP n-type specimens with carrier concentrations from 10^{16} to 10^{18} cm^{-3} at 80 and 296K. Deeply located photoactive impurity centers with energies of 0.33 and 0.14 ev and an impurity level with an energy of 0.04 ev were found in the forbidden zone. The spectral distribution of natural photoconductivity measured at 80K showed the width of the forbidden zone determined from $\lambda_{1/2}$ to be $E_G = 1.41$ ev. The peak of photosensitivity corresponded to $\lambda = 0.90—0.91$ μ. The natural photoresponse had a smaller value than the impurity photosensitivity. No correlation was found between the electron concentration and the location of the peak within the interval $n = 10^{16}—10^{18}$ cm^{-3}. Measurements performed at 296K showed that $\lambda_{1/2}$ for the peak of impurity photoconductivity corresponds to 1.21 ev. The width of the forbidden

Card 1/2

L 17711-66
ACC NR: AP6006833

zone at room temperature was E_G = 1.35 ev. The presence of minority carrier traps and the strong effect of the capture of nonequilibrium current carriers with the aid of traps on the lifetime of electrons and holes were evident. The lifetime evaluated by means of photoconductivity was of the order of 10^{-6} sec and the rate of surface recombination was 10^4—2 x 10^3 cm·sec^{-1} and depends on the surface treatment. Orig. art. has: 3 figures. [JA]

SUB CODE: 20/ SUBM DATE: 17Aug65/ ORIG REF: 001/ OTH REF: 006/ ATD PRESS: 4209

Card 2/2 nst

L 10794-67 ENT(1) IJP(c) AT

ACC NR: AP7003510 SOURCE CODE: UR/0202/66/000/004/0011/0015

30

AUTHOR: Agayev, Ya.; Burdukov, Yu. M.; Mikhaylova, M. P.; Nasledov, D. N.; Slobodchikov, S. V.

ORG: Physical-Technical Institute, Academy of Sciences Turkmen SSR)

TITLE: Mobility of current carriers in InAs

SOURCE: AN TurkmSSR. Izvestiya. Seriya fiziko-tekhnicheskikh, khimicheskikh i geologicheskikh nauk, no. 4, 1966, 11-15

TOPIC TAGS: semiconductor research, space charge

ABSTRACT: An attempt is made to relate the experimentally observed temperature behavior of mobility in a number of samples of n- and p-type InAs in the presence of an additional scattering mechanism on the space-charge regions. The semi-empirical Gossick-Weisberg relation admits a large number of variations for such mobility when it is compared with experiment. Sometimes, however, the impossibility of describing the observed temperature behavior and mobilities in real semiconductors of the type $A^{III}B^{V}$ in terms of known mobility models makes this mechanism highly applicable to the interpretation of certain experimental facts. Orig. art. has 2 figs. and 10 refs. Orig. art. has: 2 figures and 3 formulas. [JPRS: 38,695]

SUB CODE: 20 / SUBM DATE: 15Mar66 / ORIG REF: 002 / OTH REF: 008

UDC: 539.293:546.289

Card 1/1

ACC NR: AP6026693

several photoconductivity peaks in the region of intrinsic absorption are related to the band-structure features of InP. The various photoconductivity peaks are discussed. The photoeffect relaxation time indicates the existence of several long-lived components, with lifetimes ranging from several seconds to as much as 5 minutes. This indicates the importance of deep sticking levels. The authors thank G. I. Stepanov for assistance in measuring the relaxation times. Orig. art. has: 4 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 28Jan66/ ORIG REF: 002/ OTH REF: 004

Card 2/2

MALINOVSKIY, V.G., inzh.; PONOMARENKO, A.A., inzh.; BER, Z.I., inzh. [deceased]; SLOBODCHIKOV, Ye.L., inzh.; LAVRIK, P.F., inzh.; prinimal uchastiye NIZIN, N.I., tekhnik

Automatic built-up welding of iron mill rolls. Svar.proizv. no.7:24-26 Jl '60. (MIRA 13:7)

1. Yenakiyevskiy metallurgicheskiy zavod (for Malinovskiy, Ponomarenko, Ber). 2. Zhdanovskiy metallurgicheskiy institut (for Slobodchikov, Lavrik). 3. Prokatnaya laboratoriya Yenakiyevskogo metallurgicheskogo zavoda (for Nizin).
(Rolls (Iron mills)—Maintenance and Repair)
(Electric welding)

Slobodchikova, A. I.

Fuel

"The toxic effect of leaded gasoline." A. I. Slobodchikova. *Zhur. Nevropatol. i Psikhiatrii im. Korsakova* 52, No. 4, 27–31(1952).—Leaded aviation gasoline (I) had a toxic effect upon the central nervous system, indicated by the changes which took place in the behavior of the test animal as the poison accumulated in the organism. There appeared at first a short period of excitement followed by a state of inhibition accompanied by the usual concomitants of the vegetative nervous system and by cerebral effects. Cats exposed to the inhalation of I manifested toxic effects in all the regions of the central nervous system but mostly in the cortical and subcortical formations, in the cerebellum, and in the spinal cord. This is not characteristic of I only, since similar effects result from exposure to other poisons. In I poisoning the cortical elements appear to be the first to become affected. In chronic intoxication with small doses of I a satisfactory functional compensation took place and the pathomorphologic changes were not as profound.

R. S. Lewina

BULANOV, Aleksandr Ivanovich; DANILOV, Vladimir Vladimirovich; ZAKATOV, Petr Sergeyevich; YERMOLOV, Boris Pavlovich[deceased]; PAVLOV, Vitaliy Fedorovich; TROITSKIY, Boris Vladimirovich; SLOBODCHIKOVA, D.A., red.; VASIL'YEVA, V.I., red. izd-va; ROMANOVA, V.V., tekhn. red.

[Geodesy]Geodeziia. [By]A.I.Bulanov i dr. Pod obshchei red. D.A.Slobodchikova. Moskva, Izd-vo geodez. lit-ry. Pt.1. 1962 315 p. (MIRA 16:1)

(Geodesy)

NAUMOVA, S.F. [Navumava, S.F.]; SLOBODCHIKOVA, L.K. [Slabodchykava, L.K.]; YEROFEYEV, B.V. [Erafeeu, B.V.]

Epoxy resin based on poly-1,3-cyclohexadiene. Vestsi AN BSSR. Ser.khim.nav. no.2:10-15 '65. (MIRA 18:12)

SLOBODCHIKOVA, M.; LISOVITSKAYA, Z.

Issuing credit to ferrous metallurgy enterprises based on payment documents in transit. Den. i kred. 16 no.3:54-55 Mr '58. (MIRA 11:5)
(Dnepropetrovsk Province--Steel industry--Finance)
(Credit)

SLOBODCHIKOVA, M.; LISICHKO, N.; SKALOZUBOVA, N.

Improve the financing of capital repairs. Den.i kred. 19 no.6:56-58 Je '61. (MIRA 14:6)

1. Dnepropetrovskaya kontora Gosbanka.
(Dnepropetrovsk--Industrial equipment--Maintenance and repair)
(Finance)

MASLOV, V.N.; NABATOVA, L.V.; NALIMOV, V.V.; NYUBERG, I.N.; OVODOVA, A.V.; SLOBODCHIKOVA, R.I.

Presentation of the results of investigation of the structural defects of germanium. Zav. lab. 29 no.10:1206-1211 '63. (MIRA 16:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

MARKOVA, Ye.V.; SLOBODCHIKOVA, R.I.; VEKSLER, M.A.; ZELINSKIY, Yu.G.

Optimization of the process of synthesizing a sulfanilamide compound by the method of multifactor experimental planning. Zav. lab. 30 no.10:1251-1253 '64. (MIRA 18:4)

SHEYKIN, A.Ye., prof., doktor tekhn.nauk; SLOBODCHIKOVA, S.A., inzh.

Hydraulic activity of belite in relation to the conditions of obtaining it and the type of stabilizer. Nauch. soob. NIITSEmenta no.12:8-13 '61. (MIRA 15:7)
(Belite)

SHEYKIN, A.Ye., prof., doktor tekhn. nauk; SLOBODCHIKOVA, S.A., inzh.

Producing low-heat hydration portland cement on a base of phosphorous slag. Trudy NIITSement no.19:52-66 '63. (MIRA 17:11)

MIL'SHTEYN, Mikhail Abramovich, general-mayor; SLOBODENKO, Aleksey Kirillovich, polkovnik; ; PANTELEYEV, M.V., redaktor; GUBIN, M.I., tekhnicheskiy redaktor

[Military ideologists of capitalist countries on the character and means of conducting modern war] Voennye ideologi kapitalisticheskikh stran o kharaktere i sposobakh vedeniia sovremennoi voiny. Moskva, Izd-vo "Znanie," 1957. 63 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.1, nos.11-12) (MLRA 10:7)
(War)

SLOBODENKO, A.K.

MIL'SHTEYN, M.A., general-mayor; SLOBODENKO, A.K., polkovnik; ZLATOVEROV, B.S., podpolkovnik, red.; GUBINA, Z.A., tekhn.red.

[Bourgeois military science] O burzhuaznoi voennoi nauke. Moskva, Voen. izd-vo M-va obor.SSSR, 1957. 285 p. (MIRA 10:12.)
(Military art and science)

Slobodenko, A.

SLOBODENKO, A., kand. voyennykh nauk, polkovnik.

New organization of American combined arms units. Voen. vest. 37 no.11:71-78 N '57. (MIRA 11:1)
(United States--Army--Organization)

SLOBODENKO, A., kand. voyennykh nauk, polkovnik

Defense of a river bank; from the foreign press. Voen. vest. 39 no.8:83-89 Ag '59. (MIRA 12:10)
(Infantry drill and tactics)

SLOBODENKO, A., kand.voyen.nauk, polkovnik

Changes in the organization of combined arms units in the U.S.Army. Voen.vest. 39 no.4:88-91 Ap '60. (MIRA 14:2)
(United States--Army)

MIL'SHTEYN, Mikhail Abramovich, general-mayor; SLOBODENKO, Aleksey Kirillovich, polkovnik; MOROZOV, B.N., polkovnik, red.; SLEPTSOVA, Ye.N., tekhn. red.

[Bourgeois military science] O burzhuaznoi voennoi nauke. Izd.2., perer. i dop. Moskva, Voen. izd-vo M-va obor. SSSR, 1961. 354 p. (MIRA 14:10)

(Military art and science--History)

MIL'SHTEYN, Mikhail Abramovich, general-mayor; SLOBODENKO, Aleksey Kirillovich, polkovnik; LIVSHITS, Ya.L., red.; ATROSHCHENKO, L.Ye., tekhn. red.

[Military doctrine of the U.S.A.] O voennoi doktrine SShA. Moskva, Izd-vo "Znanie," 1963. 31 p. (Novoe v zhizni, nauke, tekhnike. VII Seriia: Mezhdunarodnaia, no.12) (MIRA 16:8)
(United States--Military policy)

S/058/61/000/006/052/063
A001/A101

6,9200

AUTHORS: Levshin, I.P., Slobodenyuk, G.I.

TITLE: A device for measuring correlation coefficients in distant communication lines using ultrashort waves

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1961, 359, abstract 6Zh290 ("Sb. tr. Nauchno-tekhn. o-vo radiotekhn. i elektrosvyazi im. A.S. Popova", 1959, no. 3, 140 - 151)

B

TEXT: The authors describe a device designed for measuring coefficients of correlation between two random processes which characterize signal fading at distant tropospheric propagation of ultrashort waves. They give recommendations on using this device, correlation meter, in those regions which are connected with studying statistical properties of random processes. The description of the device is preceded by a short substantiation of the measurement method.

[Abstracter's note: Complete translation]

Card 1/1

SLOBODENYUK, G.I.

Parametric excitation of oscillations in a stage with susceptance and conductance. Radiotekh. i elektron. 8 no.11:1855-1861 N '63. (MIRA 17:1)

ACCESSION NR: AP4033124 S/0120/64/000/002/0111/0112

AUTHOR: Slobodenyuk, G. I.

TITLE: Decimeter coaxial switch with nonlinear-capacitance diodes

SOURCE: Pribory* i tekhnika eksperimenta, no. 2, 1964, 111-112

TOPIC TAGS: coaxial switch, antenna switch, duplexer, semiconductor diode switch, decimeter wave switch, D219 diode switch

ABSTRACT: By applying alternatively positive and negative bias to a semiconductor diode, it can be used as an antenna switch (duplexer); the estimated forward loss is 0.16 db and the reverse loss is 38 db. D219 silicon diodes were used in an experimental coaxial switch at 700 mc. The switch is similar to that described by J. P. Knight and J. D. McNeil (Proc. IRE, 1963, v. 51, no. 2, p. 400). Orig. art. has: 4 figures and 3 formulas.

Cc

Card 1/2

ACCESSION NR: AP4043692 S/0109/64/009/008/1539/1542

AUTHOR: Slobodenyuk, G. I.

TITLE: Controlling the regeneration of an oscillatory system containing a nonlinear-capacitance diode

SOURCE: Radiotekhnika i elektronika, v. 9, no. 8, 1964, 1539-1542

TOPIC TAGS: oscillatory system, underexcited oscillatory system, oscillatory system regeneration

ABSTRACT: To avoid undesirable detuning, the d-c bias of a diode is controlled in such a way (along with a variation of the exciting power fed to the diode) that the diode capacitance remains constant. Based on well-known relations, formulas are developed which describe the detection process in the diode used for controlling the bias automatically. Relations are also indicated for guarding against a noise increase due to the shot effect. A numerical example illustrates

Card 1/2

SLOBODENYUK, G.I.

Effect of the stray parameters of semiconductor diodes on the instability factors of parametric amplifiers. Radiotekh. i elektron. 9 no.10:1884-1886 O '64.

(MIRA 17:11)

L 25554-66(A) EWT(1)/EWA(h)

ACC NR: AM6004739 Monograph UR/

Vasil'yev, V. N.; Slobodenyuk, G. I.; Trifonov, V. I.; Khotuntsev, YU. L.

Regenerative semiconductor parametric amplifiers; some problems of theory and design (Regenerativnyye poluprovodnikovyye parametricheskiye usiliteli; nekotoryye voprosy teorii i rascheta) Moscow, Izd-vo "Sovetskoye radio", 1965. 447 p. illus., biblio. Errata slip inserted. 10,500 copies printed.

TOPIC TAGS: parametric amplifier, solid state amplifier, millimeter wave amplifier, amplifier design

PURPOSE AND COVERAGE: The book contains the theory of regenerative semiconductor parametric amplifiers, developed on the basis of the theory of linear networks, and is intended for scientific and engineering-technical workers engaged in the investigation and development of parametric systems, and also for students in higher institutions of learning as a text for the course on "Theoretical Principles of Radio Engineering." The subjects covered are the various amplifier parameters, different methods of tuning parametric amplifiers, stability of the phase and frequency characteristics of a parametric emplifier, the operating features of multifrequency parametric amplifiers, and questions involved in the electrodynamic calculations and the choice of the amplifier parameters. The book contains in the form of appendices some additional data and calculations dealing with particular problems touched upon in the main text. Chs. I, VI, and VII and Secs. 1 and 2 of Ch. II, Secs. 1, 3, and 4 of Ch. III, and Appendices I, IV, and V were written by G. I. Slobodenyuk; Ch. IV, Secs. 2 and 5 of Ch. III, Secs. 1, 2, and 3 of Ch. V, and Appendices II, III, and VI were

Card 1/2 UDC: 621.375.93

L 27409-65 FBD/EWT(l)/EWG(v)/EEC-4/EEC(t) Pe-5/Pi-4/Pae-2 GW/WS

ACCESSION NR: AP5005354 S/0109/65/010/002/0364/0367 48 29 B 12

AUTHOR: Rzhiga, O. N.; Slobodenyuk, G. I.; Titov, V. N.; Trunova, Z. G.

TITLE: Decimeter-band radiometer and measurement of radiation from Jupiter

SOURCE: Radiotekhnika i elektronika, v. 10, no. 2, 1965, 364—367

TOPIC TAGS: planetary radiation, radiation measurement, radiometer, modulated radiometer, radiation flux / Virgo A, Jupiter

ABSTRACT: Measurements of 700-Mc radiation intensity from Jupiter were made in October 1963 with a modulated radiometer. The antenna system consisted of two identical antennas oriented in the same direction with their feed connected through a double T-joint. The outputs of the latter were alternately connected to the receiver through an antenna switch. A square-law detector, a modulation-frequency amplifier (passband, 10 cps) a synchronous detector using silicon diodes (time constants of the RC integrating circuit at the detector output: 1, 2, 5, 10, or 15 sec), a d-c amplifier, and a recorder made up the basic equipment. (See Fig. 1 of Enclosure.) To eliminate spurious signals, rectangular modulating voltage was applied to the grid of an i-f tube of the amplifier. The radiometer was calibrated with a noise generator; its fluctuation sensitivity was 0.4K at an integrator time con-

Card 1/3

L 27409-65

ACCESSTION NR: AP5005354

stant of 15 sec. The intensity of radiation received from Jupiter was determined from a standard noise signal calibrated by means of the source Virgo A. The radiation flux density and spectral index of Virgo A at 960 cps, (300×10^{-26} w/m^2/cps and -0.72) were adjusted to the frequency of the measurements. The equivalent temperature was determined as 12,000K with an rms error of 2000K. The results of the observations confirm the pattern found in earlier measurements at other wavelengths of the variation of radiation intensity with wavelength. Orig. art. has: 1 figure and 3 formulas. [DW]

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 24Feb64 ENCLOSURE: 01 SUB CODE: AA, EC

NO REF SOV: 002 OTHER: 010 ATD PRESS: 3192

Card 2/3

L 27409-65

ACCESSION NR: AP5005354 ENCLOSURE: 01

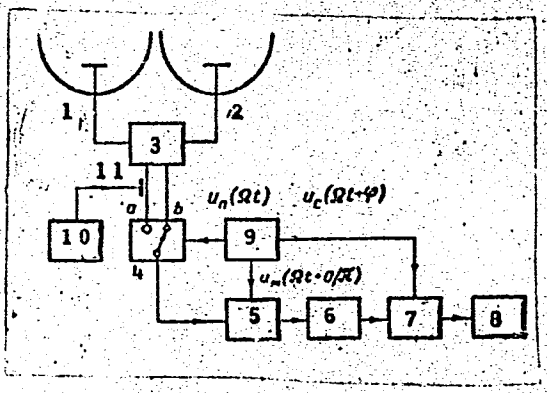


Fig. 1. Block diagram of the radiometer

1, 2 - Antennas; 3 - double T-joint; 4 - antenna switch; 5 - superheterodyne receiver with square-law detector; 6 - modulation-frequency amplifier; 7 - synchronous detector; 8 - recorder; 9 - rectangular pulse generator; 10 - noise generator; 11 - capacitive attenuator.

Card 3/3

L 63073-65 EEC(b)-2/EWA(h)/EWT(1) Pi-4/Pj-4/Pl-4/Pm-4/Peb

ACCESSION NR: AP5013343 UR/0109/65/010/005/0898/0902

621.378.5

AUTHOR: Slobodenyuk, G. I.; Khotuntsev, Yu. L. 39 B

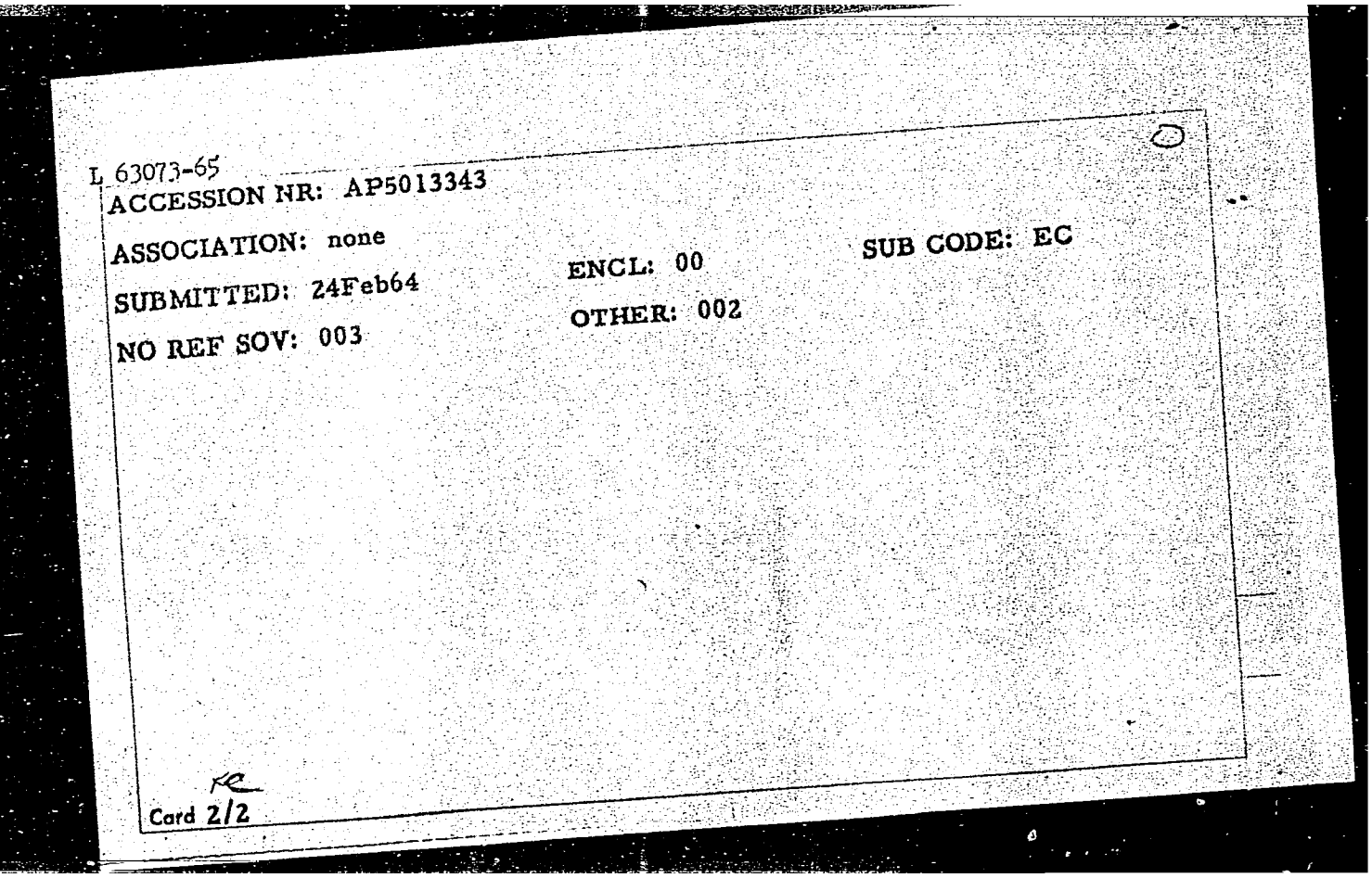
TITLE: Parametric-amplifier tuning by controlling the bias and pumping amplitude of the diode 25

SOURCE: Radiotekhnika i elektronika, v. 10, no. 5, 1965, 898-902

TOPIC TAGS: parametric amplifier, parametric amplifier tuning

ABSTRACT: The tuning of a parametric amplifier (or converter) by controlling the capacitance and modulation factor of the parametric diode, with a fixed pumping frequency, is theoretically considered. The amplifier gain formula given by L. Blackwell and K. Kotzebue ("Semiconductor-diode parametric amplifiers," NY, 1961) is used; no input filter is assumed. The formulas for the tuning range are tested in the cases of alloy and diffused diodes having typical parameters, and it is found that a two-circuit amplifier or a regenerative converter can be tuned within 10% of the signal frequency without changing the pumping frequency. Orig. art. has: 29 formulas.

Card 1/2



L 63073-65
ACCESSION NR: AP5013343

ASSOCIATION: none

SUBMITTED: 24Feb64 ENCL: 00 SUB CODE: EC

NO REF SOV: 003 OTHER: 002

KE
Card 2/2

SLOBODENYUK, I.

Improving the repair of cold storage chambers. Mias. ind. SSSR 29 no.6:48-49 '58. (MIRA 11:12)

1.Sumskiy myasokombinat.
(Cold storage warehouses)

SLOBODENYUK, I.T.

Mechanized production line for the flaying and conveying of pigskins. Kharch.prom. no.4:5-7 O-D '63. (MIRA 17:1)

SLOBODENYUK, N. I.

"Epidemiology of Dysentery in Infants. (Based on Data from the City of Dnepropetrovsk)." Min. Public Health Ukrainian SSR, Dnepropetrovsk Medical Inst., Dnepropetrovsk, 1954. (Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya Letopis', No. 22, 1955, pp 93-105

MIROVALEVA, Z.G., dotsent; SHANGIN, N.I.; LEGEN'KIY, I.G., assistent; SLOBODENYUK, N.I.

Public health of the Province and City of Omsk on the 40th anniversary of Soviet power. Trudy OMI no.25:23-48 '59. (MIRA 14:10)

1. Iz kafedry organizatsii zdravookhraneniya Omskogo meditsinskogo instituta imeni Kalinina, zav. kafedroy dotsent Z.G.Mirovaleva.
(OMSK PROVINCE--PUBLIC HEALTH)

SLOBODENYUK, N.P., student IV kursa.

Random walks related to a Markov chain. Stud.nauk.pratsi no.16:165-177 '55. (MLRA 10:2)
(Probabilities)

32517
S/044/61/000/011/040/049
C111/C444

16.6100 (2403)

AUTHOR: Slobodenyuk, N. P.

TITLE: On the estimation of the distribution function based on the realisation of the stationary process

PERIODICAL: Referativnyy zhurnal, Matematika, no. 11, 1961, 23, abstract 11V117. (Tr. Vses. soveshchaniya po teorii veroyatnostey i matem. statistika, 1958. Yerevan, AN Arm SSR, 1960, 88-95

TEXT: It is communicated that the empiric distribution function

$$F_T(x) = \frac{1}{T}\int_0^T \Psi_x\left[\xi(t)\right] dt$$

where

$$\Psi_x(t) = \begin{cases} 1 \text{ for } t < x \\ 0 \text{ for } t \geq x \end{cases}$$

and $\xi(t)$ is a stationary process in the narrow sense converges for $T \to \infty$ to the onedimensional distribution function $F(x)$ of the process

Card 1/2

SLOBODENYUK, N.P. [Slobodeniuk, M.P.]

Limit theorem for additive functionals of a sequence of sums of independent random variables. Dop. AN URSR no.6:698-700 '63 (MIRA 17:7)

1. Institut matematiki AN UkrSSR. Predstavlenc akademikom AN UkrSSR B.V. Gnedenko [Hnedenko, B.V.]

ACCESSION NO: AP4015116

the random variables $\eta_n = \sum_{k=0}^{n-r} f_n(S_{nk}, S_{nk+1}, \ldots, S_{nk+r})$. It is of interest to study the limit distribution of these variables. The special case of an arbitrary non-negative function $f_n(x, y)$ of two variables is considered. Thus, $\eta_n = \sum_{k=0}^{n-1} f_n(S_{nk}, S_{nk+1})$.

Denote by $w(t)$, $0 \leq t \leq 1$, the Brownian motion process on the interval $[0,1]$.

Define $H_n(x) = Mf_n^2(x, x + S_{n1})$, $h_n(x) = 2n \int_0^x H_n(t)\,dt$,

$\Phi_n(x) = Mf_n(x, x + S_{n1})$, $u_n(x) = 2n \int_0^x \Phi_n(t)\,dt$, and $g_n(x) = \sqrt{n}\, Mf_n(x, x + S_{n1})\,\xi_1$.

Under certain stated conditions the following theorems are proved: Theorem 1. If there exists a function $h(x)$ such that $h_n(x) \to h(x)$ for almost all x, then the limit distribution of η_n coincides with the distribution of the variable $\omega\left(\int_0^{w(1)} h(t)\,dt - \int_0^1 h(w(t))\,dw(t)\right)^{\frac{1}{2}}$, where ω is a normal (0, 1) random variable not

Card 2/3

SKOROKHOD, A.V. (Kiyev); SLOBODENYUK, N.P. (Kiyev)

Limiting distribution for additive functionals of a sequence of sums of independent equally distributed latticed random variables. Ukr. mat. zhur. 17 no.2:97-105 '65.
(MIRA 18:5)

L 8931-66 EWT(d)/T IJP(c)

ACC NR: AP5028004 SOURCE CODE: UR/0052/65/010/004/0660/0671

AUTHOR: Skorokhod, A. V.; Slobodenyuk, N. P.

ORG: None

TITLE: Limit theorems for random walks. Part 1.

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 10, no. 4, 1965, 660-671

TOPIC TAGS: distribution theory, random walk problem, distribution function, existence theorem

ABSTRACT: An investigation is made of the sequence of independent, indentically distributed random variables $\xi_1, \xi_2, \ldots, \xi_n, \ldots$, $M\xi_i = 0$, $D\xi_i = 1$. It is assumed that $S_k = \sum_1^k \xi_i$.

This article studies the limit distributions of the normalized sums $\eta_n = \sum_{k=1}^{n} f(S_k)$, where f(x) is a measurable function. Specifically, the authors study the problem of the existence of constants A_n and B_n such that the distribution of the variable $(\eta_n - A_n)/B_n$ converged at $n \to \infty$ to some nondegenerate distribution. Orig. art. has: 68 formulas.

SUB CODE: MA / SUBM DATE: 22Mar65 / ORIG REF: 005 / OTH REF: 007

Card 1/1

L 45156-66 EWT(1)
ACC NR: AP6021952 SOURCE CODE: UR/0052/66/011/001/0056/0067

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B

AUTHORS: Skorokhod, A. V. (Kiev); Slobodenyuk, N. P. (Kiev)

ORG: none

TITLE: Limit theorems for random walks. 2

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 11, no. 1, 1966, 56-67

TOPIC TAGS: boundary value problem, random walk problem, probability, functional equation, Gaussian distribution, Laplace transform, normal distribution

ABSTRACT: This paper is a continuation of work published earlier (A. V. Skorokhod and N. P. Slobodenyuk, Teoriya veroyat. i yeye primen., X, No. 4, 1965, p. 660). The definitions are not repeated. The limit distributions of the values η_n in the general case ($A_n \neq 0$) are studied. In the absolutely continuous case,

$$u_n(x) = \frac{2\sqrt{n}}{B_n} \int_0^{x\sqrt{n}} f(y)\,dy - \frac{2na_n x}{B_n},$$

$$g_n(x) = \frac{2\sqrt{n}}{B_n^2} \int_0^{x\sqrt{n}} f^2(y)\,dy - \frac{2a_n}{B_n} u_n(x) - \frac{2na_n^2 x}{B_n^2}.$$

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$$= \prod_{k=1}^{\infty} \frac{1}{\sqrt{2\pi}\,\sigma_k} \int_{-\infty}^{\infty} \exp\left\{-\frac{(1-2i\lambda\sigma_k^2)x^2}{2\sigma_k^2}\right\} dx = \prod_{k=1}^{\infty} (1-2i\lambda\sigma_k^2)^{-1/2} =$$

$$= \prod_{k=1}^{\infty} \left(1-\frac{8i\lambda}{(2k+1)^2\pi^2}\right)^{-1/2} = (\cos\sqrt{2i\lambda})^{-1/2}.$$

Orig. art. has: 24 formulas.

SUB CODE: 12/ SUBM DATE: 22Mar65/ ORIG REF: 003/ OTH REF: 002

Card 3/3

SLOBODENYUK, P.S.

Compacting railroad beds. Transp. stroi. 11 no.7:8-9 Jl '61. (MIRA 14:7)

1. Glavnyy inzh. tresta Sibstroymekhanizatsiya.
(Railroads--Earthwork)

SLOBODENYUK, P.S.

Carrying out earthwork operations in winter. Transp. stroi. 14 no.1:7-10 Ja '64. (MIRA 17:8)

1. Glavnyy inzh. Sibstroymekhanizatsii.

ISAYENKO, E.P.; SLOBODENYUK, P.S.; MIROSHNIK, B., red.

[Characteristics of the construction of roadbed in Siberia; lectures for the correspondence courses for engineers and technicians of the Novosibirsk Institute of Railroad Transportation Engineers] Osobennosti sooruzheniia zheleznodorozhnogo zemlianogo polotna v Sibiri; lektsii dlia zaochnykh kursov ITR pri NIIZhTe. Novosibirsk, Novosibirskii in-t inzhenerov zhel-dor. transp. 1964. 54 p. (MIRA 18:7)

SLOBODENYUK, Vasiliy Prokof'yevich; BERGAUZ, L.A., red.; SMOLDYREV, A.Ye., red.izd-va; LOMILINA, L.N., tekhn.red.

[Technical norms for mining operations] Tekhnicheskoe normirovanie gornykh rabot na predpriiatiiakh tsvetnoi metallurgii. Pod red. L.A.Bergauza. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1959. 126 p. (MIRA 13:2)
(Mining engineering) (Nonferrous metals)

SLOBODETSKIY, L. N.

"Concerning the Representation of Regular Functions in a Unitary Circle by Certain Series of Interpolation," Dokl. AN SSSR, 32, No.1, 1941

Inst. Math. & Mech., Leningrad State U.

USSR/Mathematics - Function Theory Apr 1947
Mathematics - Series

"The Presentation of Regular Functions by a Series of Fractional Rational Functions," L. N. Slobodetskiy, 3½ pp

"Doklady Akademii Nauk SSSR" Vol LVI, No 2

PA 34T38

The question is examined of the presentation of regular functions by a series of the type

$$c_0 + \sum_{n=1}^{\infty} c_n \Pi_n(z),$$

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USSR/Mathematics - Function Theory (Contd) Apr 1947

where

$$\Pi_n(z) = \prod_{k=1}^{n} \frac{z - a_k}{1 - z\bar{a}_k} \quad (n \geq 1); \; |a_k| < 1;$$

$$\sum_{k=1}^{\infty} (1 - |a_k|) = +\infty$$

in the proposition that the number $\{a_k\}$ have only a final number of condensation points:

$$e^{i\alpha_1}, e^{i\alpha_2}, \ldots, e^{i\alpha_p}.$$

34T38

SLOBODETSKIY, L. N.

ID

SLOBODETSKIY, L.N.

USSR.

Slobodeckiĭ, L. N. On strongly elliptic differential operators. Doklady Akad. Nauk SSSR (N.S.) 89, 13–15 (1953). (Russian)

Let L be a system of differential operators of order $2m$ on a domain D of Euclidean n-space,

$$Lu = (-1)^m \sum_{(k)} A^{(k_1,\cdots,k_{2m})}(x) \frac{\partial^{2m} u(x)}{\partial x_{k_1} \cdots \partial x_{k_{2m}}} + Tu$$

acting on N-vector functions u, with the A's $N \times N$ matrices and T of order $<2m$. L is strongly elliptic if

$$(\sum_{(k)} A^{(k_1,\cdots,k_{2m})}(x) \alpha_{k_1} \cdots \alpha_{k_{2m}} y, y) > 0$$

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1-F/W

(OVER)

for every real non-zero N-vector a. We may consider L as defining an operator L_0 in the N-vector L^2 space over D whose domain is the set of $2m$-times continuously differentiable functions with compact supports in D. If L has constant coefficients and $T=0$, by a Fourier-integral argument due to Van Hove [Nederl. Akad. Wetensch., Proc. 50, 18–23 (1947); these Rev. 8, 522] and Gårding [C. R. Acad. Sci. Paris 230, 1039–1032 (1950); these Rev. 11, 521] L_0 is a positive operator, being bounded from below by a constant multiple of the m-Dirichlet norm. The author presents examples with $m=2$, $N=2$; $m=$, $N=1$ to show that positivity no longer holds for variable coefficients. [See the second preceding review.] *F. Browder*

SLOBODETSKIY, L. N.

Mathematical Reviews
May 1954
Analysis

10-7-54
LL

(2)

Slobodeckiĭ, L. N. On a problem of the theory of univalent functions. Doklady Akad. Nauk SSSR (N.S.) 92, 235–238 (1953). (Russian)

Let B be a region in the ζ-plane of finite connectivity and let Σ be the class of functions univalent and meromorphic in B of the form $F(\zeta)=1/(\zeta-z)+\cdots$ or $F(z)=z+\cdots$ according as the pole z is finite or infinite. Let

$$j_0(\zeta, z, \zeta')=1/(\zeta-z)+\cdots,\ j_0(\zeta', z, \zeta')=0,$$

be the function which maps B onto the plane cut by arcs of logarithmic spirals $\Im(e^{-i\theta}\log w)=c$, and put

$$p(\zeta, z, \zeta')=j_0^{1/2}(\zeta, z, \zeta')j_{z^2}^{1/2}(\zeta, z, \zeta')$$

and

$$q(\zeta, z, \zeta')=j_0^{1/2}(\zeta, z, \zeta')/j_{z^2}^{1/2}(\zeta, z, \zeta').$$

It is proved that if $F(z)\in\Sigma$ and γ_{ij} are arbitrary then

$$(*)\quad \Re e^{-2i\theta}\sum_{i,j=1}^{n}\gamma_{ij}\log\frac{F(\zeta_i)-F(\zeta_j)}{p(\zeta_i, z, \zeta_j)}\geqq\Re\sum_{i,j=1}^{n}\beta_{ij}\log q(\zeta_i, z, \zeta_j)$$

where the β_{ij} are certain functions of the γ_{ij}. When B is the region $|\zeta|<1$, the functions p and q are explicitly known and (*) reduces to a generalized form of the distortion theorem due to Goluzin [Mat. Sbornik N.S. 23(65), 353–360 (1948); these Rev. 10, 602]. *A. W. Goodman.*

SLOBODETSKIY, L.N.

USSR/ Mathematics - Cauchy's problem

Card 1/1 Pub. 22 - 6/51

Authors : Slobodetskiy, L. N.

Title : Cauchy's problem for non-homogeneous parabolic systems

Periodical : Dok. AN SSSR 101/5, 805-808, Apr. 11, 1955

Abstract : A proof is given of the solvability of Cauchy's problem as applied to a system of non-homogeneous parabolic differential equations. This was accomplished for the sake of completion of the Eydel'man work where the solvability of Cauchy's problem was proved in the case of homogenous parabolic differential equations. Two USSR references (1951 and 1954).

Institution : .....

Presented by: Academician V. I. Smirnov, December 11, 1954

SLOBODETSKIY, L.N.

USSR/Mathematics

Card 1/1 Pub. 22 - 5/47

Authors : Slobodetskiy, L. N.

Title : Generalization of the solution of hyperbolic and elliptical systems of differential equations

Periodical : Dok. AN SSSR 101/6, 997 - 1000, Apr. 21, 1955

Abstract : A series of theorems are proved for the purpose of establishing qualitative characteristics of generalized solutions of parabolic (A) and elliptical (B) systems of differential equations, when (A) is:

$$\frac{\partial u}{\partial t} - \sum_{\nu=1}^{2k} \sum_{i_1,\ldots,i_\nu=1}^{n} A^{(i_1,\ldots,i_\nu)}(t,x) \frac{\partial^\nu u}{\partial x_{i_1} \cdots \partial x_{i_\nu}}$$

$-A(t,x)u = f(t,x)$; and (B) is:

$$\sum_{\nu=1}^{2k} \sum_{i_1,\ldots,i_\nu=1}^{n} A^{(i_1,\ldots,i_\nu)}(x) \frac{\partial^\nu u(x)}{\partial x_{i_1} \cdots \partial x_{i_\nu}}$$

$+ A(x)u(x) = f(x)$. Nine references: 6 USSR, 2 USA and 1 Swiss (1908-1954).

Institution : The State Pedagogical Institute, Leningrad

Presented by: Academician V. I. Smirnov, December 25, 1954

SLOBODETSKIY, L.N.

USSR/ Mathematics

Card 1/2 Pub. 22 - 5/46

Authors : Slobodetskiy, L. N.

Title : A theory of the potential for parabolic equations

Periodical : Dok. AN SSSR 103/1, 19-22, Jul 1, 1955

Abstract : A theory of the potential for so-called parabolic equations is presented. A parabolic equation, according to Petrovskiy, is

$$u'_t - Mu \equiv u'_t - \sum_{i,j=1}^{n} a_{ij}(t,X)\, u''_{xjxj} - \sum_{j=1}^{n} b_j(t,X)\, u'_{xj} -$$

$$- c(t,X)\, u = f(t,X), \quad a_{ij} = a_{ji},$$

provided the a_{ij}, b_i, c and f are complex functions of the real variables

Institution : Leningrad State Pedagogical Institute

Presented by: Academician V. I. Smirnov, March 26, 1955

Card 2/2 Pub. 22 - 5/46

Periodical : Dok. AN SSSR 103/1, 19-22, Jul 1, 1955

Abstract : t and X (= $x_1 \ldots x_n$) at any real values of $x_1 \ldots x_n$ which in return satisfy the following conditions:

$$\mathrm{Re}\,\lambda \geqslant \delta \sum_{n=1}^{n} \alpha_n^2 \quad (\delta > 0)$$

where x and λ are

$$\lambda = \lambda(t, X, A) = \sum_{i,j=1}^{n} a_{ij}(t, X)\alpha_i \alpha_j.$$

Ten references: 2 Germ., 2 Brit., 5 USSR and 1 Ital. (1908-1955).

SLOBODETSKIY, L.N.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG - 416
AUTHOR SLOBODECKIJ L.N., CHARAMOVA M.I.
TITLE On the uniqueness of the solution of the Cauchy problem for quasi-linear symmetric systems of differential equations.
PERIODICAL Uspechi mat. Nauk 11, 4, 155-162 (1956)
reviewed 12/1956

Usually the question on the uniqueness of the solutions of the Cauchy problem for non-linear partial differential equations in the region of non-analytic functions is reduced to the question of the uniqueness in the linear case. The authors show that in case of some (so-called symmetric) systems of first and second order the question of the uniqueness can be solved more easily by the direct consideration of the quasi-linear system. There the conditions for the uniqueness correspond to Osgood's conditions for the uniqueness of the solution of the Cauchy problem for systems of ordinary differential equations. Under a symmetric system the authors comprehend systems

$$\frac{\partial^2 u}{\partial t^2} = \sum_{i,j=1}^{n} A_{ij} \frac{\partial^2 u}{\partial x_i \partial x_j} + f\left(t, x, u, \frac{\partial u}{\partial t}, \frac{\partial u}{\partial x_1}, \dots \frac{\partial u}{\partial x_n}\right),$$

where $A_{ij} = A_{ij}\left(t, x, u, \frac{\partial u}{\partial t}, \frac{\partial u}{\partial x_1}, \dots, \frac{\partial u}{\partial x_n}\right)$ is a Hermitean matrix and $A_{ij} = A_{ji}$. Further for arbitrary vectors ξ_i it is demanded: $\sum_{i,j=1}^{n} (A_{ij} \xi_i, \xi_j) \geq \mu^2 \sum_{i=1}^{n} |\xi_i|^2$.

SLOBODETSKIY, L.N.; BABICH, V.M.

Boundedness of the Dirichlet integral. Dokl.AN SSSR 106 no.4: 604-606 F '56. (MLRA 9:6)

1.Leningradskiy pedagogicheskiy institut. Predstavleno akademikom V.I.Smirnovym.
(Integrals)

SLOBODETSKIY, L.N.

38-6-4/5

AUTHOR: SLOBODETSKIY, L.N.

TITLE: Generalized Solutions of Parabolic and Elliptic Systems (Obobshchennyye resheniya parabolicheskikh i ellipticheskikh sistem)

PERIODICAL: Izvestiia Akademii Nauk,SSR, Seriya Matematicheskaya, 1957, Vol. 21, Nr.6, pp.809-834 (USSR)

ABSTRACT: The author makes a qualitative investigation of the generalized solutions of the system

$$Lu \equiv \frac{\partial u}{\partial t} - \sum_{r=1}^{2p} \sum_{i_1,..,i_r=1}^{n} A^{(i_1,..,i_r)}(t,x) \frac{r_u}{\partial x_{i_1} \dots \partial x_{i_r}} - A(t,x)u =$$

$$= f(t,x),$$

which is assumed to be parabolic and elliptic, respectively (in the sense of Petrovskiy). The investigation bases on the application of the estimations of Eydel'man [Ref 4] of the fundamental matrix and on the properties of this matrix resulting therefrom.

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Generalized Solutions of Parabolic and Elliptic Systems 38-6-4/5

The results of the paper are already published in Doklady Akademii Nauk, 1955, Vol. 101, pp.997-1000.
15 Soviet and 5 foreign references are quoted.

PRESENTED: By V.I.Smirnov, Academician
SUBMITTED: December 6, 1956
AVAILABLE: Library of Congress

Card 2/2

SLOBODETSKIY, L.N.

S.L. Sobolev's spaces of fractional order and their application to boundary problems for partial differential equations. Dokl. AN SSSR 118 no.2:243-246 Ja '58. (MIRA 11:4)

1.Leningradskiy gosudarstvennyy pedagogicheskiy institut. Predstavleno akademikom V.I. Smirnovym.
(Differential equations, Partial)

SOV/39-46-2-5/6

AUTHOR: Slobodetskiy, L.N. (Leningrad)

TITLE: On the Fundamental Solution and the Cauchy Problem for a Parabolic System (O fundamental'nom reshenii i zadache Koshi dlya parabolicheskoy sistemy)

PERIODICAL: Matematicheskiy sbornik, 1958, Vol 46, Nr 2, pp 229-258 (USSR)

ABSTRACT: The author considers the system

$$(A)\quad Lu \equiv \frac{\partial u}{\partial t} - \sum_{r=1}^{2p} \sum_{i_1,..,i_r=1}^{n} A^{(i_1,..,i_r)}(t,x) \frac{\partial^r u}{\partial x_{i_1} \dots \partial x_{i_r}} - A(t,x)u = f(t,x)$$

assumed to be parabolic in the sense of Petrovskiy [Ref 1], where quadratic matrices are denoted with A and u and f denote vectors. The author shows that the estimations of the fundamental matrix of (A) obtained by Eydel'man [Ref 2] remain true under somewhat weaker assumptions than in [Ref 2]. Furthermore he shows that the conditions for the correctness of the Cauchy problem for (A) can be weakened too. Finally, the results are applied to multi-dimensional Markov processes. The author's results were announced already a long time ago [Ref 6].

Card 1/2

On the Fundamental Solution and the Cauchy Problem for a Parabolic System SOV/39-46-2-5/6

There are 11 references, 9 of which are Soviet, 1 American, and 1 Japanese.

SUBMITTED: November 20, 1955

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summable in Q. Let be

$$\|f\|_{W^{(l_k)}_{x^{(k)},2}(Q)} = \left\{ \sum_{q \le l_k} \int_Q \left| D^q_{x^{(k)}} f \right|^2 dx \right\}^{1/2}$$

But if $l_k = l'_k + \lambda_k$, where l'_k is integer and $0 < \lambda_k < 1$, then (1) means that $f(x) \in W^{(l'_k)}_{x^{(k)},2}(Q)$ and that all integrals

$$L^2_k(D^q_{x^{(k)}} f) = \int_{Q^{(k)}} \left| \Delta(x^{(k)}, y^{(k)}) D^q_{x^{(k)}} f \right|^2 \frac{dx\, dy^{(k)}}{\left| x^{(k)} - y^{(k)} \right|^{n_k + 2\lambda_k}}$$

$(q \le l'_k)$. Here it is $Q^{(k)} = Q \times \Omega^{(k)}$ $(x \in Q, y^{(k)} \in \Omega^{(k)})$,

$\Delta(x^k, y^k) f = f(x^{(1)}, \ldots, x^{(k-1)}, x^{(k)}, x^{(k+1)}, \ldots, x^{(r)}) -$

$- f(x^{(1)}, \ldots, x^{(k-1)}, y^{(k)}, x^{(k+1)}, \ldots, x^{(r)})$. Furthermore it is

The Spaces of Fractional Order of S.L.Sobolev and Their Application to Boundary Value Problems for Partial Differential Equations

20-118-2-10/60

$D^{m_1}_{x(1)} \cdots D^{m_r}_{x(r)} f \in W^{(\bar{l}_1,..,\bar{l}_r)}_{x(1),..,x(r),2}$, where $\bar{l}_k = \mu_{m_1,..,m_r} l_k$. Here it is

$$\left\| D^{m_1}_{x(1)} \cdots D^{m_r}_{x(r)} f \right\|_{W^{(\bar{l}_1,..,\bar{l}_r)}_{x(1),..,x(r),2}(E_n)} \leq C \left\| f \right\|_{W^{(l_1,..,l_r)}_{x(1),..,x(r),2}}$$

and C does not depend on f.
A further theorem contains the statement on the generalized derivatives in m-dimensional sections E_m of the space E_n.

Both theorems prove to be very useful for the treatment of boundary value problems. In three theorems the unique solubility of boundary value problems is proved for the polyharmonic equation $\Delta^p u = 0$, for $\Delta u = f(x)$ and for $\frac{\partial u}{\partial t} = \Delta u + f(t,x)$.

There are 3 Soviet references.

ASSOCIATION: Leningradskiy gosudarstvennyy pedagogicheskiy institut (Leningrad State Pedagogical Institute)

Card 4/5

The Spaces of Fractional Order of S.L. Sobolev and Their Application to Boundary Value Problems for Partial Differential Equations 20-118-2-10/60

PRESENTED: October 28, 1957, by V.I. Smirnov, Academician

SUBMITTED: April 11, 1957

AVAILABLE: Library of Congress

Card 5/5

SOV/20-120-3-7/67

AUTHOR: Slobodetskiy, L.N.

TITLE: Estimations of the Solutions of Elliptic and Parabolic Systems (Otsenki resheniy ellipticheskikh i parabolicheskikh sistem)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 120, Nr 3 pp 468-471(USSR)

ABSTRACT: Let

(1) $$f \in W^{(l_1,\ldots,l_r)}_{x^{(1)},\ldots,x^{(r)},p}(Q)$$

if f for all $k = 1,2,\ldots r$ has generalized derivatives with respect to $x^{(k)}$ up to the order l_k and the derivatives are integrable over Q in p-th power.

Theorem: Let the domain Q be bounded by sufficiently smooth surfaces and let (1) be valid. Then for arbitrary non-negative integers $m_1,\ldots,m_r$ satisfying the inequality

$$\mu = 1 - \sum_{k=1}^{r} \frac{m_k}{l_k} \geqslant 0$$

there exist the generalized derivatives $D^{m_1}_{x^{(1)}} \cdots D^{m_r}_{x^{(r)}} f$;

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Estimations of the Solutions of Elliptic and Parabolic Systems SOV/20-120-3-7/67

they belong to the space $W^{(\bar{l}_1,\ldots,\bar{l}_r)}_{x^{(1)}\ldots x^{(r)},p}(Q)$ where $\bar{l}_k = l_k/\mu$.

For the norm it holds

$$\left\| D^{m_1}_{x^{(1)}} \cdots D^{m_r}_{x^{(r)}} f \right\|_{W^{\bar{l}}_{x,p}} \leqslant c \left\| f \right\|_{W^{l}_{x,p}} \quad , l \equiv (l_1,\ldots,l_r), \quad x \equiv x^{(1)},\ldots,x^{(r)}$$

(The definition of the norm compare [Ref 1]).
Four further theorems give upper and lower estimations of the norms of the solutions of linear elliptic and parabolic systems (in the sense of Petrovskiy). These estimations generalize the corresponding results of Guseva [Ref 4], Browder [Ref 5], Koshelev [Ref 6], Nirenberg [Ref 7], and Ladyznenskaya [Ref 10].

There are 10 references, 7 of which are Soviet, and 3 American.

ASSOCIATION: Leningradskiy gosudarstvennyy pedagogicheskiy institut imeni A.S. Gertsena (Leningrad State Pedagogical Institute imeni A.S. Gertsen)

PRESENTED: January 18, 1958, by V.I. Smirnov, Academician

Card 2/3

AUTHOR: Slobodetskiy, L.N. SOV/20-123-4-10/53

TITLE: Estimates in the L_p of the Solutions of Elliptic Systems (Otsenki v L_p resheniy ellipticheskikh sistem)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 4, pp 616-619 (USSR)

ABSTRACT: The author generalized his own earlier results [Ref 1,2,3] and a theorem of Gagliardo [Ref 4].
Theorem: Let l be a natural number, $1 < p < \infty$, Ω be a finite domain of the E_n with the $(l+1)$ times continuously differentiable boundary S. Let $v = v(x) \in W_p^{(l)}(\Omega)$. Then for $k=0,1,\ldots,l-1$ the derivatives with respect to the normal $\partial^k v / \partial \nu^k$ belong - considered as functions of the point of S - to the spaces $W_p^{(l-k-1/p)}(S)$. Here $\left\| \frac{\partial^k v}{\partial \nu^k} \right\|_{W_p^{(l-k-1/p)}(S)} \leq C_1 \| v \|_{W_p^{(l)}(\Omega)}$,
where C_1 depends only on Ω. The reversion of the theorem is valid too.

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Estimates in the L_p of the Solutions of Elliptic Systems SOV/20-123-4-10/53

A second theorem follows out of the above theorem and contains an assertion on the estimation of the norms of elliptic differential operators.
There are 4 references, 3 of which are Soviet, and 1 Italian.

ASSOCIATION: Leningradskiy gosudarstvennyy pedagogicheskiy institut imeni A.I.Gertsena (Leningrad State Pedagogical Institute imeni A.I.Gertsen)

PRESENTED: July 4, 1958, by V.I.Smirnov, Academician

SUBMITTED: July 2, 1958

Card 2/2

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16.3500

AUTHOR: Slobodetskiy, L.N.

TITLE: Generalized spaces of S.L.Sobolev and their appliaction to boundary value problems for partial differential equations

PERIODICAL: Referativnyy zhurnal. Matematika, no.7, 1960, 107. Abstract no.7661. Uch.zap.Leningr.gos.ped.in-ta im.A.I. Gertsena, 1958, 197, 54-112

TEXT: For arbitrary real and nonnegative numbers $l_1,\ldots,l_r$ the author introduces the functional spaces $W^{(l_1,\ldots,l_r)}_{x^{(1)},\ldots,x^{(r)},2}(Q)$, where the hyper-cylindric region of the n-dimensional space E_n, $Q=\Omega^{(1)}\times\ldots\times\Omega^{(2)},\Omega^{(k)}$ - finite or infinite region of the $E^{(k)}$ - is the n_k-dimensional space of the points $x^{(k)} = x_1^{(k)}\ldots x_{n_k}^{(k)}$. $\sum_{k=1}^{r} n_k = n$. For $l_1=\ldots=l_r=l$, and integral l the introduced spaces are identical with the spaces $W_2^{(l)}(Q)$ of Sobolev, and for l = 0 they are identical with $L_2(Q)$. The author

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Generalized spaces of S.L.Sobolev...

gives continuation and imbedding theorems for these spaces which are formulated in the same manner as the corresponding theorems of S.M. Nikol'skiy for the spaces $H_2^{(r_1,\ldots,r_n)}$. The author investigates the properties of the spaces $W_{x^{(1)},\ldots,x^{(r)},2}^{(l_1,\ldots,l_r)}(Q)$: Completeness, continuability of the functions beyond the boundaries, comparison of $W_{x^{(1)},\ldots,x^{(r)},2}^{(l_1,\ldots,l_r)}$ with $H_2^{(r_1,\ldots,r_n)}$, density of the set of finite functions etc. The spaces $W_{x^{(1)},\ldots,x^{(r)},2}^{(l_1,\ldots,l_r)}$ are also considered on differentiable manifolds. The basic results are obtained with the aid of the Fourier transformation and the Parseval equation. As applications the author derives necessary and sufficient conditions for the solvability of several problems of mathematical physics which lead to

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elliptic and parabolic equations or to the polyharmonic equation. The imbedding theorems are further improvements of the corresponding theorems of S.L.Sobolev. Some partial results of the paper are already known.

[Abstracter's note: The above text is a full translation of the original Soviet abstract.]

Card 3/3

SLOBODETSKIY, L. N., Doc Phys-Math Sci (diss) -- "S. L. Sobolev's generalized spaces and their application to marginal problems for differential equations in partial derivatives". Leningrad, 1959. 14 pp (Leningrad Order of Lenin State U im A. A. Zhdanov), 150 copies (KL, No 23, 1959, 159)

69752

S/043/60/000/02/03/011

14.3500

AUTHOR: Slobodetskiy, L.N.

TITLE: Estimations of the Solutions of Linear Elliptic and Parabolic Systems in the L_2. I. Estimations of the Solutions of the Elliptic System

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1960, No.2, pp.28-47

TEXT: The present paper is a continuation of the author's investigations (Ref.6). It uses the same notations and contains the proofs of the results already announced by the author in (Ref.1,2). At the same time the author corrects some formulations of (Ref.1). He mentions S.N.Bernshteyn, O.A. Ladyzhenskaya, O.V.Guseva, I.G.Petrovskiy, Ya.B.Lopatinskiy, I.N.Vekua, S.G.Kreyn and M.I.Vishik. There are 13 references: 11 Soviet, 1 American and 1 Swedish.

SUBMITTED: July 7, 1958

Card 1/1

AUTHOR: Slobodetskiy, L. N.

TITLE: Remarks on the Article, "Uniqueness of Solution of Cauchy's Problem for Quasi-Linear Symmetric Systems"

PERIODICAL: Uspekhi matematicheskikh nauk, 1960, Vol 15, Nr 1, p 262 (USSR)

ABSTRACT: In the paper by the author and M. I. Khramova ("On the Uniqueness of Solutions of Cauchy's Problem for Quasi-Linear Symmetric Differential Equation System," Uspekhi Matematicheskikh nauk, Vol 11, Nr 4 (70) (1956) 155-162), it was assumed that $F(z)$ is a positive nondecreasing and nonconvex function and that the integral:

$$\int_0^{\delta} \frac{dz}{F(z)} \qquad (\delta > 0)$$

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Remarks on the Article, "Uniqueness of Solution of Cauchy's Problem for Quasi-Linear Symmetric Systems"

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diverges. In this note the author shows that the condition that F(z) be nondecreasing is not required. There is 1 Soviet reference.

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AUTHOR: Slobodetskiy, L. N.

TITLE: Embedding of spaces $W_p^{(l_1,\ldots,l_n)}$ in spaces $N_p^{(l_1,\ldots,l_n)}$ by S. M. Nikol'skiy

PERIODICAL: Uspekhi matematicheskikh nauk, v. 15, no. 3, 1960, 177-180

TEXT: The author derives a theory of embedding which establishes a relation between the functional spaces $W_p^{(l)}$ explained in earlier papers and the functional spaces $N_p^{(l)}$ by S. M. Nikol'skiy. At the beginning, he defines the spaces $W_p^{(l)}$ and $N_p^{(l)}$: The function $u = u(x)$ is described as belonging to the space $W_{x,p}^{(l)}$ if u and its generalized derivative $d^l u/dx^l$ belong to L_p. The function u(x) is described as belonging to the space $N_{x,p}^{(l)}$ if it belongs to the space $W_{x,p}^{(l)}$, and if the conditions:

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Embedding of spaces ...

$$\left\| \Delta_x(d^{\bar{l}}u/dx^{\bar{l}},\ h) \right\|_{L_p} = o(|h|^{\alpha}) \text{ for } 0<\alpha<1,$$

$$\left\| \Delta_x^2(d^{\bar{l}}u/dx^{\bar{l}},\ h) \right\|_{L_p} = o(|h|) \text{ for } \alpha = 1$$

with $l = \bar{l} + \alpha$, $\Delta_x(u,h) = u(x+h) - u(x)$ are fulfilled. The author presents the result obtained, in the following form: If the function $u(x)$ belongs to the space $W_p^{(l)}$ then it also belongs to the space $N_p^{(l)}$. Moreover, it holds that

$$\left\| \Delta(d^{l'}u/dx^{l'},\ h) \right\|_{L_p} = o(|h|^{\lambda}) \quad (h\to 0),$$

if $l = l' + \lambda$, $0<\lambda<1$, and

$$\left\| \Delta^2(d^{l-1}u/dx^{l-1},\ h) \right\|_{L_p} = o(|h|) \quad (h\to 0).$$

There are 7 Soviet-bloc references.

SUBMITTED: October 15, 1958

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SLOBODETSKIY, L.N.

Estimates in L_2 for solutions of linear elliptic and parabolic systems. Part 1: Estimations of solutions of an elliptic system. Vest.LGU 15 no.7:28-47 '60. (MIRA 13:4)
(Differential equations, Partial)

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AUTHORS: Slobodetskiy, L. N., Solomeshch, J. A.

TITLE: On the first boundary value problem for some degenerate elliptic equations

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, no. 3, 1961, 116-126

TEXT: Let Ω be a finite domain of the n-dimensional space $x = (x_1, \ldots, x_n)$; S -- sufficiently smooth boundary of Ω. Let $\sigma = \sigma(x)$ be a $(2k + 1)$ - times continuously differentiable function in $\bar{\Omega} = \Omega + S$ for which

$$A_1 \delta(x) \leqslant \sigma(x) \leqslant A_2 \delta(x) \qquad (1)$$

where $\delta(x)$ is the distance from x to S and A_1, A_2 are positive constants. Let $u = u(x) \in W^{(k)}_{2,\alpha}(\Omega)$ $(0 \leq \alpha < 1)$, if u is square summable over Ω and possesses all generalized derivatives of order k in Ω, where it holds

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On the first boundary value . . .

$$D_{\alpha}^{(k)}(u) = \int_{\Omega} \left[\sum_{i_1,\ldots,i_k=1}^{n} \left(\frac{\partial^k u}{\partial x_{i_1} \ldots \partial x_{i_k}} \right)^2 \right] \sigma^{\alpha} dx < +\infty \quad . \qquad (2)$$

Let

$$\| u \|_{W_{2,\alpha}^{(k)}(\Omega)} = \left\{ \int_{\Omega} u^2 dx + D_{\alpha}^{(k)}(u) \right\}^{\frac{1}{2}} , \qquad (3)$$

Assume that the subdomain $\Omega_\delta (\delta > 0)$ of Ω consists of the points for which $\varrho(x) > \delta$. Let S_δ be the boundary of Ω_δ. Let f_o, f_1, ..., f_{k-1} be functions defined on S; $\vec{\nu} = \vec{\nu}(x')$ is assumed to be unit vector of the interior normal of S in $x' \in S$. Let

$u \in W_{2,\alpha}^{(k)}(f)$, if $u \in W_{2,\alpha}^{(k)}(\Omega)$ and if it holds

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On the first boundary value . . .

$$\left.\frac{\partial^j u}{\partial \nu^j}\right|_S = f_j \quad (j = 0,1,\ldots, k-1), \tag{4}$$

where the equality $u|_S = f$ is understood in the sense of $u|_{S\delta} \to f$ in the mean for $\delta \to 0$.

Let the Sobolev spaces $W_2^{(l)}$ be defined as usual.

The boundary S of Ω is assumed to satisfy the conditions: a.) S can be covered by a finite number of overlapping surfaces $\sigma_1, \ldots, \sigma_q$, where each of the surfaces σ has the equations

$$x_l = x_l(t_1, \ldots, t_{n-1}) \quad (l = 1,2,\ldots,n) \tag{6}$$

where $x_l(t_1, \ldots, t_{n-1}) = x_l(t')$ are defined in a cube γ of the space of the $t' = (t_1, \ldots, t_{n-1})$; b.) there exists a $\delta > 0$ such that for every

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On the first boundary value . . .

$s = 1,2,\ldots, q$ the equation

$$x = x(t') + \nu\, t_n \qquad (7)$$

defines a one-to-one transformation of Ω_s onto the rectangular parallelepiped M_s : $t' \in \gamma_s$, $0 < t_n < 2\delta$ (Ω_s consists of those points of Ω which are in a distance from Γ_s smaller than 2δ);

c.) $x(t)$ is k-times continuously differentiable with respect to $t_1,\ldots, t_n$ and $t = t(x)$ with respect to $x_1,\ldots, x_n$.

Theorem 1: If $u \in W_{2\alpha}^{(k)}(\Omega)$, then u possesses all generalized derivatives of orders $l < k$ in Ω, where on each sufficiently smooth manifold Γ of the dimension $m > n' - 2(k - l - \alpha)$ the derivatives $D^l u$ of the order l are summable in the power

$$q^* < \frac{2n}{n'-2(k-l-\alpha)} \qquad (10)$$

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On the first boundary value . . .

and

$$\| D'u \|_{L_{q^*}(\Gamma)} \leq C \| u \|_{W^{(k)}_{2,\alpha}(\Omega)} \qquad (11)$$

holds, where C does not depend on u.

Theorem 2: If the class $W^{(k)}_{2,\alpha}(f)$ is not empty, then there exists a unique function $u \in W^{(k)}_{2,\alpha}(f)$, which gives a minimum to the integral (2) in the class $W^{(k)}_{2,\alpha}(f)$. This function is 2k-times continuously differentiable in Ω and is the single solution of

$$\sum_{i_1,\ldots,i_k=1}^{n} \frac{\partial^k}{\partial x_{i_1} \ldots \partial x_{i_k}} \left(\sigma^{\alpha} \frac{\partial^k u}{\partial x_{i_1} \ldots \partial x_{i_k}} \right) = 0 \qquad (5)$$

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in $W_{2,\alpha}^{(k)}(f)$.

Theorem 3: If $u = u(x) \in W_{2,\alpha}^{(k)}(\Omega)$, then the boundary values of its normal derivatives of the order $j \leq n - 1$ on S belong to the spaces $W_2^{(\tau_j)}(S)$ with $\tau_j = k - 1 - \frac{1+\alpha}{2}$. Here it holds

$$\left\| \frac{\partial^j u}{\partial \nu^j} \right\|_{W_2^{(\tau_j)}(S)} \leq c \, \|u\|_{W_{2,\alpha}^{(k)}(\Omega)} \qquad (18)$$

where C does not depend on u.

Theorem 4: Let $f_j \in W_2^{(\tau_j)}(S)$ $(j = 0,1,\ldots, k-1)$. Then there exists a function $u \in W_{2,\alpha}^{(k)}(\Omega)$ which satisfies the boundary conditions (4). Here it holds

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$$\|u\|_{W_{2,\alpha}^{(k)}(\Omega)} \leq C \sum_{j=0}^{k-1} \|f_j\|_{W_2^{(\tau_j)}(S)} \qquad (29)$$

where C does not depend on f_j (j = 0,1,..., k-1).

Theorem 5: In order that the class $W_{2,\alpha}^{(k)}(f)$ be not empty it is necessary and sufficient that $f_j \in W_2^{(\tau_j)}(S)$ (j = 0,1,..., k-1).

Theorem 6: In order that the boundary value problem (5), (4) be solvable in $W_{2,\alpha}^{(k)}(\Omega)$ it is necessary and sufficient that $f_j \in W_2^{(\tau_j)}(S)$ (j = 0,1,..., k-1). If these conditions are satisfied, then for the solution u = u(x) it holds:

$$C_1 \sum_{j=0}^{k-1} \|f_j\|_{W_2^{(\tau_j)}(S)} \leq \|u\|_{W_{2,\alpha}^{(k)}(\Omega)} \leq C_2 \sum_{j=0}^{k-1} \|f_j\|_{W_2^{(\tau_j)}(S)}, \qquad (37)$$

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On the first boundary value . . .

where C_1, C_2 are positive constants only depending on Ω.

The authors mention: V. M. Babich, A. A. Vasharin, M. J. Vishik, S. G. Mikhlin, Ye. V. Makhover, S. L. Sobolev.

There are 12 Soviet-bloc references and 1 non-Soviet-bloc reference. The reference to English-language-publication reads as follows: N. Aronszain, Boundary values of functions with finite Dirichlet integral. Conf. on part. diff. equat., No. 14, (Univ. of Kansas), 1955.

ASSOCIATION: Leningradskiy pedagogicheskiy institut imeni A. J. Gertsena (Leningrad Pedagogical Institute imeni A. J. Gertsen)

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SUBMITTED: February 9, 1959

Card 8/8

SLOBODETSKIY, L.N., doktor fiz.-mat. nauk, prof.

[Textbook for a higher mathematics course] Uchebnoe posobie po kursu vysshei matematiki. Leningrad. Sec.: Theory of determinants] Teoriia opredelitelei. 1963. 36 p. (MIRA 17:4)

BABICH, V.M.; KAPILEVICH, M.B.; MIKHLIN, S.G.; NATANSON, G.I.; RIZ, P.M.; SLOBODETSKIY, L.N.; SMIRNOV, M.M.; LYUSTERNIK, L.A., red.; YANPOL'SKIY, A.R., red. MIKHAYLOVA, T.N., red.

[Linear equations in mathematical physics] Lineinye uravneniia matematicheskoi fiziki. [By] V.M.Babich i dr. Moskva, Izd-vo "Nauka," 1964. 368 p. (MIRA 17:7)

SLOBODETSKIY, L.N.

Fundamental solution to a parabolic system and its continuous dependence on the parameter. Dokl. AN SSSR 156 no. 4:742-744 Je '64. (MIRA 17:6)

1. Leningradskiy institut vodnogo transporta. Predstavleno akademikom V.I.Smirnovym.

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24(8)

AUTHORS: Rabinovich, G.D., Slobodich, G.N.

TITLE: An Experimental Investigation of the Heat Transfer Process Between a Pulsating Gas Flow and Solid Particles Suspended in It

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 9, pp 30-37 (USSR)

ABSTRACT: A number of writers dealt with the problem of intensification of heat transfer: I.T. El'perin, V.P. Romadin [Ref 5], Linke and Hufschmid [Ref 3]. The authors of the present paper describe the results of some preliminary experiments in their investigation of the heat transfer process in a pulsating gas flow. Hot air heated to 130 - 150°C served as a gas whose flow was periodically interrupted by a pulsator, which led to pulsations of its velocity. The grains of rye were made to move in this pulsating air flow. It has been found that the duration of particle staying in a tube was considerably longer for the case of a pulsating flow than in the stationary flow; this is shown by Figure 1 and Formula 5. On the other hand, the coefficient of heat transfer decreases with an increase in the number of pulsations of the air flow, as shown by Figure 2. However, the resulting effect of pulsations on the effectiveness of heat transfer is positive, as shows Figure 3, and

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An Experimental Investigation of the Heat Transfer Process Between a Pulsating Gas Flow and Solid Particles Suspended in It

the effectiveness of this process can be raised by a factor of 3 or 4 in comparison with heat transfer in a stationary flow. This may be of importance for designing small-size or portable drying and heat transfer devices. Investigations of the following Soviet researchers are mentioned in the paper: D.N. Lyakhovskiy, I.M. Fedorov [Ref 9], Z.F. Chukhanov [Ref 11], I. Gastershtadt [Ref 7], N.M. Mikhaylov [Ref 9] and S.S. Zabrodskiy [Ref 12].
There are 3 graphs and 13 references, 10 of which are Soviet, 2 English and 1 American.

ASSOCIATION: Institut energetiki AN BSSR (Institute of Power Engineering of the AS BSSR), Minsk

SLOBODICH, G.N.

Using the thermistor for temperature measurements in a circuit with an e.m.f. bridge. Trudy Inst.energ. AN BSSR no.10:122-126 '59. (MIRA 13:6)
(Electric measurements)

SLOBODICH, L.A.

Equipping bins of motar pumps with vibrating screens. Suggested by L.A.Slobodich. Rats.i izobr.v stroi. no.9:61-62 '59.
(MIRA 13:1)

1. Glavnyy mekhanik UNR-2 tresta No.1 Ministerstva stroitel'stva BSSR, Minsk, ul.Vysokaya, d.15.
(Motar)

POTIYEV, A.A., SLOBODIN, B.V.

Interaction of sodium sulfate with vanadium pentoxide.
Zhur. neorg. khim. 10 no.1:150-159 Ja '65.
(MIRA 18:11)

1. Institut khimii Ural'skogo filiala AN SSSR. Submitted Nov. 14, 1963.

FOTIYEV, A.A.; SLOBODIN, B.V.

Kinetics of the formation of vanadium bronze NaV_6O_{15} during the reaction of sodium sulfate with vanadium pentoxide. Zhur. prikl. khim. 38 no.3:499-504 Mr '65. (MIRA 18:11)

1. Institut khimii Ural'skogo filiala AN SSSR. Submitted May 13, 1963.

POTIEV, A.A.; [illegible], B.V.

Behavior of sodium sulfate at high temperatures. Zhur. neorg. khim. 10 no.3:569-572 Mr '65. (MIRA 18:7)

1. Institut khimii Ural'skogo filiala AN SSSR.